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# Lessons from the flipside: How do acquirers learn from divestitures to complete acquisitions?

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ABSTRACT

We examine whether experience from prior divestitures is associated with higher completion likelihood in subsequent acquisitions. We argue that through divestitures, firms could extract meaningful knowledge that is helpful for completing their acquisitions, such as a general understanding of acquisition deal-making stages, and the stories and aims of the target in an M&A transaction. In addition, viewing divestitures as the flipside of acquisitions, we conjecture that the selling firm can observe how the divested component of their business is acquired, and vicariously learn from these observations. We also investigate the relative importance of learning from divestiture vis-à-vis acquisition experience in determining acquisition deal completion. Finally, we contend that the effect of learning from divestitures on acquisition deal completion depends on acquisition experience and deal value. We find evidence supporting our conjectures in a sample of 2164 M&A transactions from the worldwide computer and printing industries between 1991 and 2010.



## Introduction

The research stream on factors that influence the decision whether to complete an acquisition deal[1] has experienced considerable growth in the last decade (e.g., Chakrabarti and Mitchell, 2015; Dikova et al., 2010; Kim and Song, 2017; Li et al., 2017; Muehlfeld et al., 2012; Zhou et al., 2016). These studies are conducted in the context of the *M&A pre-integration process* – i.e., the period before the official integration. This process normally starts with the decisions of firms on both the direction (industry) and manner (acquisition *versus* greenfield) of expansion, followed by evaluating potential targets and selecting a suitable partner. Once the target selection process is completed and the intention to acquire is approved by the board of directors, firms publicly announce their commitment to acquire and enter the important stage of due diligence. During this stage, both firms are involved in several negotiations, and administrative and strategic activities to clarify synergies as well as potential risks of the future integration. Other related issues such as premium bids, method of payment and integration of human resources are also taken into account (Chakrabarti and Mitchell, 2015; Muehlfeld et al., 2012; Sherman, 2011). If both

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[1] In this paper, the terms 'M&A deals' or 'M&As' are also used to refer to acquisition deals.

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firms agree on all of the terms and conditions, and the future integration receives approval from the regulatory authority, an announcement on the completion of the pre-integration process (i.e., the deal is *completed*) will be made publicly, and the two firms will enter the integration period (Haspeslagh and Jemison, 1991; Jemison and Sitkin, 1986).

Prior research indicates that not all deals reach the integration stage. Depending on the industry and the types of the deals (e.g., domestic *versus* cross-border), M&A abandonment rates vary between 5 and 35 percent. For example, Chakrabarti and Mitchell (2015) find that 17.3 percent of the 1603 M&A domestic acquisitions announced by U.S. chemical manufacturing firms between 1980 and 2004 were abandoned. In another study on cross-border M&A deals "from" and "to" emerging countries between 1995 and 2010, the abandonment rate is 34.3 percent of the 2736 deals in the sample (Zhou et al., 2016).

This variation in rates of M&A abandonment has stimulated research interest in the factors influencing the completion likelihood of M&A deals. The financial losses from failing to complete M&A deals are undeniable. In addition to transaction costs, firms walking away from an M&A deal may have to bear a termination fee, which can go up to billions of dollars in many cases. An example is the $4 billion that AT&T had to pay Deutsche Telekom after terminating the offer in 2011.[2] Furthermore, not only financial costs, but also the reputation and credibility of managers involved in the transaction can be damaged by the abandonment of an acquisition (Jemison and Sitkin, 1986; Officer, 2003). For instance, the failed merger between General Electric and Honeywell in 2001 led not only to the dismissal of CEO Michael Bonsignore of Honeywell (Cabral, 2011), but also severely sullied the reputation of General Electric Chairman Jack Welch before his retirement in the same year (The Economist, 2014). Considering these losses, M&A abandonment is clearly not a welcome end for the parties involved in the deal.

In addition to implications for practitioners, findings from recent studies also suggest that the M&A pre-integration process is a fertile ground for academic research, particularly in strategic management. Although the common assumption is that whether an M&A deal will be completed depends mostly on the bidding prices, prior research has demonstrated a number of non-financial determinants of M&A completion. Examples of such non-financial aspects are the geographic distance between the two firms (Chakrabarti and Mitchell, 2015), distance in country law, regulation and risk (Zhou et al., 2016), capital market development and business group affiliation (Kim and Song, 2017), legitimacy concerns (Li et al., 2017), cultural and institutional differences between acquirers and targets (Dikova et al., 2010), and experience with prior acquisitions (Muehlfeld et al., 2012).

We attempt to contribute to this research stream by investigating whether firms can learn from prior divestitures to complete an M&A deal. Recent studies have confirmed that firms' experience with past acquisitions has a significant impact on the probability that an M&A deal is completed (Muehlfeld et al., 2012). In addition, Brauwer et al. (2014) demonstrate that experience with prior sell-offs can enhance firm performance. Similar to learning from acquisitions, divestiture experience allows firms to better understand issues related to implementing divestitures, and to develop routines for handling these activities (Shimizu and Hitt, 2005). Empirical evidence from Zollo and Reuer (2010) indicates that the accumulation of alliance experience facilitates successful implementation of acquisitions, suggesting the possibility of knowledge spillover across different restructuring activities. Inspired by these notable findings, we explore the role of learning from prior divestitures on M&A completion. With "divestitures", we consider sell-offs, transactions in which "assets sold from one firm to another in exchange for cash and/or securities" (Bergh and Lim, 2008: 595). Hence, by the very nature of the associated transaction, a divestiture can be regarded as the flipside, or the "mirror image", of an acquisition (Villalonga and McGahan, 2005). We propose that this "flipside" context offers the target firms valuable opportunities to enrich their understandings of the procedures associated with the M&A pre-integration period, which can enhance the likelihood of completing a future M&A deal.

Moreover, the special context of the flipside also allows target firms to learn vicariously from their partners – i.e., the acquiring firms – to handle the pre-integration process of their subsequent M&A deal. Whilst knowledge from prior acquisitions may trigger firms to refine their routines regarding acquisitions deal-making, which may limit the diversification of knowledge (Haleblian and Finkelstein, 1999; Sitkin, 1992; Zahra and George, 2002), lessons learnt from prior divestitures stimulate firms to alter their current M&A deal-making routines. This enhances their current understanding of M&A deal-making processes (Schilling et al., 2003). These arguments lead to two propositions: (1) firms can learn how to complete M&A transactions from experience with prior divestitures; and (2) the learning impact of divestiture experience on acquisition completion may well be larger than that of acquisition experience.

Learning in strategic contexts such as M&As, in both the ex ante deal-making and ex post integration phase, appears to be much more complicated than in operational contexts such as manufacturing or distribution due to the complexity and heterogeneity of acquisitions (and divestitures). Hence, similar to learning from acquisition experience, the learning effect of divestiture experience on acquisition completion likelihood may not be constant and stable, but rather is likely to vary across different contingencies. We anticipate that background knowledge on acquisitions can accelerate firms' retrieval, collection and analysis of new knowledge obtained in the flipside context. Hence, firms that already have experienced acquisitions will learn better from divestitures to complete a subsequent M&A deal. In addition, the size of the deal may also moderate the relationship between divestiture experience and M&A completion. We suppose that firms tend to have set routines for small M&A transactions. However, in larger deals, as increased attention, consideration and effort are required, managers will need

[2] This $4 billion includes $3 billion break up fee in cash and $1 billion of wireless spectrum access (Source: https://arstechnica.com/tech-policy/2011/12/att-admits-defeat-on-t-mobile-takeover-will-pay-4-billion-breakup-fee/).

to seek knowledge from other repositories such as those obtained from past divestitures in order to complement established routines. Therefore, the learning impact from divestiture experience is hypothesized to be more significant when the focal deal is large.

The remainder of this paper is organized in four sections. Section two presents an overview on the M&A pre-integration process, followed by theoretical arguments and hypotheses on the effect of divestiture experience on M&A completion likelihood and its contingencies. Sections three and four summarize our data and empirical models, and the results from our analyses. Section five concludes, and offers some suggestions for future research.

## Theory and hypotheses

### *The pre-integration process*

In this study, we use the term "the pre-integration process" to refer to the period before the public announcement regarding whether an M&A transaction is completed or withdrawn. Although this period is relatively short compared to the post-integration process, quite a few strategic and administrative tasks are involved, which not only determine the probability that a deal is consummated, but also influence the future of the integration (Boone and Mulherin, 2007, 2009; Muehlfeld et al., 2012).

The pre-integration process normally begins with a preparation stage, in which firms conduct all initial-stage tasks necessary to engage in an M&A transaction, such as clarifying the motives and objectives of buying (or selling) assets, evaluating the market, building the M&A team, and scanning for appropriate partners (Angwin et al., 2015; Galpin and Herndon, 2014; Miller, 2008; Sherman, 2011). Several candidates may be available for a future M&A transaction. To discover more about these candidates, firms can organize "get to know each other" meetings to discuss with the other firms the potentials of integration, and to evaluate whether the transaction will imply a strategic and financial fit for the parties involved (Sherman, 2011). Once preliminary analyses are completed and a partner is selected, both firms sign a confidentiality agreement and a letter of intent, and enter the most important stage in the pre-integration process – the stage of due diligence.

In this stage, the acquirer (i.e., the acquiring or buying firm) conducts extensive reviews of the target's finances, operation history, organization structure, and contractual relationships. These analyses are done through examining documents prepared by the target firm (or selling firm),[3] and answers to follow-up questions, if necessary. The main purposes of these tasks are not only to ensure that the transaction will create synergies, but also to determine whether or not potential risks or liabilities of integration will exceed expected values generated by the deal (Reed et al., 2007; Sherman, 2011). Negotiations on premium bids, method of payment, integration of human resources, and other regulatory matters are also discussed, based on these analyses (Sherman, 2011). Given the complexity of all of these tasks, the due diligence stage does not always progress smoothly. Numerous integration challenges can emerge, which are generated by not only the two partners of the transaction, but also by external parties.

First, the target firm may not appreciate the due diligence stage, in which their business policies and decisions are investigated "under the microscope, especially for an extended period of time and by a party that is searching for skeletons in the closet" (Sherman, 2011: 88). In addition to that, the selling firm may suffer from "don't call my baby ugly" syndrome if the acquiring firm finds flaws in their business operations, personnel qualities and the like, and launches attacks on these imperfections during negotiations (Sherman, 2011). All of these hindrances may make the concerned individuals from the selling firm impatient, evasive and defensive during the process. Second, hesitation in consummating the transaction might come from the acquirer's side if they discover potential risks or liabilities during due diligence, which might greatly harm future integration (Reed et al., 2007; Sherman, 2011). Poor communication and misunderstanding between the two partners in the transaction may be another obstacle (Angwin et al., 2015). Moreover, the acquirer might need to solve the matter of increasing premium bids due to competing offers from other bidders (Boone and Mulherin, 2007). Third, interference from regulatory authorities is another challenge that both firms may need to deal with. If the regulatory authorities are concerned that the deal threatens the competitive environment or leads to a substantially more concentrated market, they can either deny or apply strict conditions on the deal (Bergman et al., 2005; Clougherty, 2005). Meeting these conditions, and obtaining approval of managers and shareholders are all necessary steps before the deal can move into the final closing stage cumulating in the public announcement of the completion of the deal.

### *Learning from divestiture experience to complete M&A transactions*

Evidence from prior research shows that experience from past acquisitions can help firms in dealing with the complexity of the pre-integration process, hence increasing the probability that the deal is completed (e.g., Muehlfeld et al., 2012). We claim that prior acquisitions might not be the only knowledge source from which firms could learn to complete future

[3] We use the terms "acquirer", "acquiring firm", "buyer" or "buying firm" interchangeably to refer to the buying side. Similarly, the terms "target", "target firm", "selling firm" or "seller" are used for the selling side.

acquisitions. More precisely, firms may learn to acquire not only from the acquirer's side, but also from the target's side of an M&A transaction. We draw arguments from theories on organizational and vicarious learning to support our predictions.

Organizational learning is defined as any changes in organizational knowledge that result from experience (Argote and Miron-Spektor, 2011). Since observing changes in organizational knowledge is difficult, the majority of empirical research on organizational learning has assumed that changes in organizational knowledge are reflected in changes in observable organizational performance (Argote, 1999; Baum and Ingram, 1998; Madsen and Desai, 2010). In order for learning to happen, or for experience to influence organizational performance, organizational members should be able to extract meaningful new knowledge from experience. In addition, experience should motivate organizational members to alter existing knowledge, which will result in changes in the behavior of organizational members, affecting their performance positively (Madsen and Desai, 2010). We suggest that both of these conditions are satisfied in the case of learning from divestiture experience to complete M&A transaction deals.

First, as a partner in the transaction, the selling firm has the opportunity to obtain a general understanding as to how to progress through the pre-merger process, involving a plethora of stages and tasks that need to be handled effectively and efficiently. Although the motives of the acquiring and target firm are different, the overlap in their duties in the pre-integration process is large. For instance, both firms need to prepare and agree on the terms in the letter of intent. Moreover, the target is required to arrange necessary material, and has to support the buyer with any follow-up questions in the due diligence stage (Miller, 2008; Sherman, 2011). They are also involved in the reviews and negotiations for the asset purchase agreement. Furthermore, together with the buyer, they prepare a checklist and commence the process for regulatory and other third-party contractual approvals such as banks, insurance companies, competition authorities and the like (Miller, 2008). Subsequently, when the deal is about to be finalized, the target firm conducts reviews with the acquiring firm on information to be released to the press and/or communications with other third parties (Sherman, 2011). We argue that through conducting all of the tasks and duties from the flipside of the transaction, the target can develop an overview of many ins and outs of the pre-integration process.

Second, in a roundtable discussion on “strategies for managing a successful divestiture” organized by PricewaterhouseCoopers (PwC), participants emphasized that divesting assets at the right time in a business cycle is among the important factors that influence the success of the transaction. One participant suggests: “We tried to sell a fairly cyclical business and the market cratered. […] Strategically, it was always known that it was not a fit and it would be sold when the time was right” (PricewaterhouseCoopers, 2012). Hence, conducting a divestiture offers the selling firm insights into how to evaluate the market and what the optimal timing for an M&A transaction is, which can be fruitfully applied in later acquisition attempts.

Third, being in the position of the target offers firms ample opportunities to develop a deep understanding of the seller's perspective, including its responsibilities and needs, which will be instrumental to handle the due diligence stage more effectively when put in the acquirer's seat. According to Galpin and Herndon (2014: 67), many acquirers still struggle with the question: “How much should we work with the target/partner to gather due diligence information?” The real issue might not just be which kind of information and how much information to request from the target, but also when to ask for this (Galpin and Herndon, 2014; Sherman, 2011), given the fact that the target does not usually welcome the due diligence stage (Sherman, 2011). Hence, they prefer to opt for the bidder offering respect, trust, and comfortable feelings (Graebner and Eisenhardt, 2004). We argue that this issue might be easier to deal with if the acquirers themselves have experienced divestitures before. Through divesting, they may know which kind of information is generally requested by other bidders, which information the target is willing to provide in the context of due diligence, and so on. Moreover, they may understand the general mood, desires, and motivations at the other side of the table, so that when they are in the acquirer's role, they might be able to “create an atmosphere of both trust and fear in the seller that encourages full and complete disclosure” (Sherman, 2011: 88), which is important for an effective due diligence process.

Fourth, when participating in a divestiture, the target is actually involved in the acquisition experience of the acquiring firm, offering valuable opportunities to learn vicariously about acquisition deal-making processes. Vicarious learning relates to learning from the experience of others (Bandura, 1977; Levitt and March 1988). The usual strategies of vicarious learning in the context of M&As, as studied in past literature, are observing and imitating the decisions of other firms. For example, firms imitate their interlocking partners in assessing deal values (Haunschild, 1994) and selecting investment banks (Haunschild and Miner, 1997). Moreover, empirical evidence reveals that firms rely on their competitors for information to select the locations and the industries of their own targets (Baum et al., 2000; Yang and Hyland, 2006). As information on M&As is normally confidential, firms can only observe and imitate the actions or behaviors that are visible, without any understanding of the underlying causal relationships between these behaviors and their effects on performance. This leads to a concern that firms may copy practices based on legitimacy, rather than efficiency and strategic considerations (DiMaggio and Powell, 1983).

Vicarious learning from the flipside of an acquisition is, however, different from ‘imitation’-type of vicarious learning. The main reason is that now the learner – i.e., the selling firm – does not observe from the outside, but participates from the inside in the experience of the buying firm, which offers a few significant advantages. First, the target, from the other side of the table, can participate in the experience of the acquiring firm *as it occurs*. Therefore, compared to vicarious learning through imitation, the target (as the learner) has access to more visible and complete experiences of the other firm (i.e., the acquirer) with fewer ambiguities and uncertainties. Second, the target has the chance to observe directly and closely the acquirer's task activities and their outcomes; they can evaluate both the positive and negative aspects of the acquirer's behavior from their own perspective (Hoover et al., 2012; Skinner, 1953). This enables the target to learn which actions are "good" and which are "bad". As a result, rather than imitating all routines or exactly mimicking the behavior of others, the targets can cherry-pick those behaviors they believe will bring better results (Hoover et al., 2012). Finally, during the pre-integration process, many tasks, including negotiations and interactions among internal and external parties, may be repeated several times. Therefore, vicarious learning procedure is also repeated, which enhances the ability to evaluate the whole process in order to extract meaningful knowledge.

In addition to the primary effect, we argue that vicarious learning from the divesting side may be facilitated by various other factors, particularly the amount and quality of the information embedded in the event (Argote and Orphir, 2002; Levinthal and March 1993), the visibility of the information (Ingram, 2002; Ocasio, 1997), and the completeness of the observed task (March et al., 1991). First, the pre-integration period includes several tasks and events that involve complex knowledge (Boone and Mulherin, 2007, 2009). This information can vary from knowledge related to managing the pre-integration period to skills and techniques of negotiating and interacting with other actors involved in the transaction, such as the press and regulatory authorities. Second, as a transaction partner, the target has access to contractual information that may be confidential under usual circumstances (Officer, 2003). Hence, information visibility is not a concern in this case. Third, as both partners experience the entire process, what is observed is always comprehensive for vicarious learners (i.e., the target), no matter whether or not the deal is later finalized. Collectively, these factors help to accelerate the vicarious learning process, and enable the target to extract meaningful knowledge related to the pre-integration period that can later be converted into references and templates to guide future acquisition activities (Hoover et al., 2012; Kim and Miner, 2007).

Considering all of the above arguments, we conclude that, even from the other side of the table, the selling firm can obtain meaningful knowledge on how to manage acquisition deal-making in the pre-integration process. Hence, we claim that learning from divestiture experience increases the likelihood that an M&A transaction is completed. This assumes that the knowledge from divestiture experience can be retained within the organization, notwithstanding the fact that the people handling the divestiture might in some cases leave with the divested assets. After all, normally a team is established to manage the divestiture, including experts on accounting (particularly tax structuring), and legal and HR issues (Sherman, 2011). The business unit managers are not considered to be essential players in this team, precisely because their loyalties may change during the process (PricewaterhouseCoopers, 2012).

**Hypothesis 1**. *Divestiture experience has a positive effect on acquisition completion likelihood.*

*Learning from divestitures versus acquisitions in the pre-integration process*

A follow-up question is: Does divestiture experience generate considerable or just minor changes in performance in the pre-integration process, particularly when compared to the frequently studied measure of acquisition experience? Indeed, there is evidence that acquisition experience plays an important role in determining the likelihood that an M&A transaction will be completed (Chakrabarti and Mitchell, 2015; Muehlfeld et al., 2012). However, the learning processes from acquisition experience and from divestiture experience are quite different in nature. Learning from acquisition experience to make acquisitions refers to processes in which firms retrieve, codify, and generalize knowledge from experience into routines that can be applied to guide similar future activities (Argote, 1999; Haleblian and Finkelstein, 1999; Zahra and George, 2002). The advantage of this process is that it creates specialization, which helps firms focus on refining routines on solving one specific task (Schilling et al., 2003). Distraction is reduced because the experience is similar to the focal event. However, the drawback of learning through these routinized processes is that it limits diversification and variation of organizational knowledge (Sitkin, 1992). Additionally, since firms can apply existing routines, the attention or desire to acquire new knowledge from similar events in order to further develop current organizational knowledge could be restricted.

While learning from acquisition experience leads to refinement of organizational knowledge, learning from divestiture experience may motivate organizational members to alter their current knowledge on acquisition deal-making. As knowledge from divestiture experience is collected from the flipside of an M&A transaction, it provides firms insights on acquisition deal-making from the target's perspective, particularly through the anecdotes, primary concerns, and requirements of the target. These new insights and understandings might trigger organizational members to realize that their existing routines of acquisition deal-making are not adequate and still need adjustments. Hence, they may be motivated to learn from these new insights and use them to alter their current knowledge.

In addition, prior literature suggests that learning from tasks that are related to the focal event creates variation that accelerates the development of more abstract principles belonging to a general class of tasks, which helps enhancing general organizational knowledge as a whole (Graydon and Griffin, 1996; Paas and van Merrenboer, 1994; Schilling et al., 2003). Learning from prior related tasks also facilitates organizational members to acquire deeper understanding than if they would perform solely one type of task over time (Schilling et al., 2003). With a similar logic, we suggest that knowledge obtained from divestiture experience adds variations to understanding as to how to handle M&As in the pre-merger process. Hence, it facilitates organizational members to develop their current understanding on acquisition deal-making in the M&A pre-integration process. It also assists organizational members in creating solutions for challenges in this process. As Schilling and colleagues indicate: "When learners think about two different types of problems that are similar in some fundamental ways, they may be able to apply a solution or logic developed in one problem domain to the other problem domain, rapidly increasing their understanding of the second problem domain, resulting in the "Aha!" experience characteristic of insightful problem solving" (Schilling et al., 2003: 52).

Together, the above arguments suggest that firms could obtain meaningful knowledge from divestiture experience that accelerates the process of handling and completing M&A transactions, moving beyong adaptation of current task-specific routines. While acquisition experience leads to refinement of organizational knowledge on acquisition deal-making, divestiture experience challenges the status quo, motivating organizational members to obtain new insights and alter existing knowledge.

**Hypothesis 2**. *The effect of divestiture experience on acquisition completion likelihood is stronger than the effect of acquisition experience on acquisition completion likelihood.*

*Boundary conditions of vicarious learning in the pre-integration process*

Our first moderator of the relationship between divestiture experience and M&A completion involves ***acquisition experience of the acquirer***. Extracting applicable information from experience is always a challenge (Levinthal and March 1993; March et al., 1991), especially from a different context. However, according to the absorptive capacity perspective (Cohen and Levinthal, 1990; Kogut and Zander, 1992; Zahra and George, 2002), the ability to advantageously explore new knowledge can be enhanced if organizations already have experience on events, activities, and capabilities related to the focal event. Hence, we suppose that when dealing with a complex knowledge resource such as divestitures, knowledge from prior acquisitions can assist the target firm to locate, identify, understand, and interpret new information, assessing the advantages of the new knowledge. Moreover, having a knowledge base involving how and when particular practices are effective can enhance the ability to communicate and transfer knowledge among the organization's members (Szulanski, 1996). Therefore, firms will benefit more from learning in the event of divestitures when they have already directly experienced acquisition deal-making processes.

Compared to firms that have conducted many acquisitions, firms with fewer acquisition experiences may have some difficulties in deriving meaningful lessons from acting at the flipside of the pre-integration process for several reasons. First, such firms are not very familiar with the pre-integration process, and hence are likely to focus more on exploring and handling novel tasks, thus limiting their ability to observe and extract knowledge from the acquirers' behavior. Second, inexperienced firms may overestimate or underestimate the importance of acquisition deal-making tasks and their consequences because they lack an adequate detailed knowledge structure as a platform on which to develop new knowledge (Madsen and Desai, 2010). Even if they could extract meaningful lessons, it may be difficult for them to convert these lessons into organizational knowledge that can guide future activities because “their prior base of knowledge provides limited guidance regarding how to access, evaluate, and utilize knowledge” (Madsen and Desai, 2010: 458).

**Hypothesis 3**. *The effect of divestiture experience on acquisition completion likelihood is greater for more experienced acquirers than for less experienced acquirers.*

Our second moderation argument relates to ***transaction size***. We suggest that learning from divestiture experience is better facilitated in larger rather than in smaller acquisition deals. A first explanation for this prediction is that, as smaller acquisitions are more common, we can expect that firms have established routines and procedures to conduct such smaller deals (Chatterjee, 2007; Ellis et al., 2011). Larger acquisition deals, however, are less frequent and more complex, requiring increased attention and consideration from the managers involved. In this event, simple routines established in the context of smaller transactions may not be adequate, inducing managers to draw from other repertoires relating to different experiences – for example, experience gained from prior divestitures.

A second reason is that, in the event of learning from past divestitures, a segment of knowledge is stored in individuals' memories as learning processes occur through observations of and interactions with other members involved in the deal. This implies that each member participating in the transaction can be considered, in a way, as an individual knowledge reservoir. Furthermore, the type of knowledge that they obtain can be different depending on their background, roles, and personalities (Hambrick et al., 1996; Wiersema and Bantel, 1992). For example, certain members may focus specifically on the financial aspects of the deal, whereas other members are primarily interested in the regulatory tasks. Likewise, the manner in which each member observes and interprets an experience may differ. Hence, interaction among members is a must not only for knowledge sharing among observers, but also to facilitate that members are exposed to a wider variety of new perspectives and paradigms (Nadler et al., 2003; van der Vegt and Bunderson, 2005).

Large M&A transactions are normally more complex and require more managerial capacities in realizing synergies (Lubatkin, 1983; Seth, 1990). Additionally, large acquisition deals are associated with increased preparation such as careful planning and dealing with regulatory authorities. Therefore, in larger transactions, greater involvement of managers and intra-organizational departments is required (Ellis et al., 2011). Furthermore, the costs and challenges associated with a large deal are more likely to involve greater risk and uncertainty (Zollo, 2009). This may lead to greater attention to, consideration of, and interaction among managers and other responsible members in the deal-making teams. As a result, the process of sharing unique knowledge among members is facilitated in large deals, helping to utilize knowledge that is individually internally retained. Moreover, with greater attention to and more discussion among members of the deal-making team, the interpretation of the earlier experience is enhanced. Smaller deals, in contrast, are usually associated with lower pressure, lower costs, and fewer challenges. Hence, smaller transactions require less intense participation of the members of deal-making teams, limiting the likelihood of exploiting knowledge from divestitures.

**Hypothesis 4**. *The effect of divestiture experience on acquisition completion likelihood is greater for larger deals than for smaller deals.*

## Data and methodology

### *Sample of data*

We test our hypotheses in the context of two industries: the computer and printing industries over the period from 1991 to 2010. With the rapid improvement of technology, the computer industry has been among the most active industries in terms of acquisition activities. Recently, PwC interviewed ten technology leaders from different countries worldwide about their opinion regarding acquisition activities.[4] The majority agreed that the IT industry had been very dynamic in recent years – not only in developed countries such as the US and the UK, but also in developing countries and continents such as India and Latin America. In contrast, the printing industry is considered to be in decline after several shocks created by the rise of cable and satellite TV (in the 1908s) and digitization (in the 2000s). Hence, in this industry, corporate restructuring has been used as an important strategic tool with the intention of consolidation or geographic diversification (Muehlfeld et al., 2012). Together, these two industries yield meaningful variation in the data. Moreover, as the computer industry is part of the manufacturing sector and the printing industry involves services, we hope to obtain a more balanced view of learning across two different types of sectors.

Our data were collected from the SDC Thomson database (henceforth SDC). In order to be included in the sample, the M&A deal has to be announced between January 1, 1991 and December 31, 2010. In addition, the primary SIC code of at least one M&A partner had to be in the computer (SIC codes: 3571, 3572, 3575, and 3577) or the printing industry (SIC codes: 2711, 2731, and 2732). The sample comprises 2164 M&A deals with 1389 deals in the computer industry and 775 deals in the printing industry. These transaction attempts were conducted by 1077 acquiring firms. Cisco System, Inc. (from the US) is, by far, the largest acquirer with 103 M&As announced during the entire period, which accounts for 4.76 percent of the sample. The second and third largest acquirers announced 27 and 23 M&As, respectively, in this observation period (constituting 1.25 percent and 1.06 percent of the sample, respectively). The number of M&A announcements per firm differs only minimally among the remaining firms. On the selling side, Fujitsu Ltd. (from Japan) and Hewlett-Packard Co. (from the US) are the two largest divesting firms with 53 and 41 divestitures, respectively, between 1991 and 2010. Interestingly, the largest acquirer, Cisco System, Inc., made only 20 divestitures in the whole period.

### *Variables*

***Dependent variable***. *Acquisition completion likelihood* indicates whether or not an announced M&A transaction was completed. This variable is dichotomous, coded as 1 if the focal deal was completed and 0 otherwise. Consistent with other papers on M&A completion (e.g., Chakrabarti and Mitchell, 2015; Dikova et al., 2010; Muehlfeld et al., 2012), this information is derived from the deal status and the completion date of a transaction recorded in SDC.

***Independent variables***. Consistent with other studies on learning in organizations (e.g., Barkema et al., 1996; Haleblian et al., 2006), we apply a count measure for our experience variables. *Divestiture experience* is measured by the number of divestiture deals that the focal acquirer handled in the five years prior to the focal transaction. To test for potential contingencies of the primary relationship between *Divestiture experience* and *Acquisition completion likelihood*, we include *Acquisition experience* and *Deal size****.*** Similar to *Divestiture experience*, *Acquisition experience* is measured by a count of announced acquisition transactions that the focal firms conducted during the five years prior to the focal transaction.[5] Capturing the size of the deal, *Deal size* is measured by the natural logarithm of the value of the deal (in million US $).

***Control variables***. In terms of transaction-level factors, we first control for the method of payment with the variable *Cash payment*, coded as 1 if the payment method is cash and 0 otherwise. Cash payments decrease uncertainty about the value of the transaction and, therefore, make the deal less complex and easier to manage than deals financed with other methods (Myers and Majluf, 1984; Weston and Jawien, 1999). Second, we include *Deal attitude*. This variable takes the value of 1 if the focal transaction is friendly and 0 otherwise. Hostile deals are, by definition, transactions that are initially opposed by the target (Conyon et al., 2001). Friendly transactions are less likely to be terminated because, by definition, these involve transactions that are generally not opposed by the target firm (Conyon et al., 2001; Holl and Kyriazis, 1996). Third, relatedness in the industry of the acquirer and the target measures whether or not the acquiring firm is familiar with the target's business. Relatedness has its pros and cons. It can bring opportunities of increasing economies of scale and scope. However, it could also mean that partners involved in a horizontal M&A deal might have been former rivals and this may incite tension during negotiation processes and bid premium races. Moreover, re-deployment of staff is another issue of concern in horizontal acquisitions as this is regarded as a key source of conflict in merger negotiations (Pickering, 1983). We code the dummy

[4] Available at: http://www.pwc.com/gx/en/technology/technology-leader-perspectives-deal-activity.jhtml.

[5] To measure the two variables on experience, we counted all acquisitions (or divestitures) that the focal firm handled in the five years prior to the announced date of the focal transaction (as reported in Thomson SDC). For example, the divestiture experience of the deal announced on 15 January, 1991 is measured as the total number of divestitures that the focal firm handled between 15 January, 1986 and 15 January, 1991.

variable *Industry relatedness* as 1 if the primary SIC codes of the acquirer and target are the same at the four-digit level and 0 otherwise. Fourth, *Cross-border* is included as cross-border M&As are usually considered to be more complex than domestic M&As due to a variety of differences such as cultural and institutional distance (Shimizu et al., 2004; Zaheer, 1995). These differences may be obstacles for firms in identifying and evaluating the target, and may complicate negotiating other issues (Shimizu et al., 2004), making the deal more difficult to complete. *Cross-border* is coded as 1 if the acquirer and the target are from different countries and 0 otherwise. Fifth, deals with more than one bidder are considered to be more difficult to complete (Pickering, 1983). We therefore include the dummy variable *Competing bid*, which is equal to 1 if more than one bidder was involved in the focal transaction and 0 otherwise.

Regarding factors at the firm level, we first take into account whether the firm is publicly owned or not, as public firms are more likely to be subject to a greater number of rules and regulations, which may cause difficulties in consummating the deal (Weston et al., 2004). *Acquirer public status* and *Target public status* are coded as 1 if firms are publicly owned, as recorded in SDC, and 0 otherwise. Second, as the number of acquisitions and divestitures that a firm conducts might well depend on their own diversification strategy, we include *Diversification index* to take into consideration the strategy of diversification of the focal acquiring firm. The variable is measured by the count of all US SIC codes of the focal acquiring firm as recorded in the SDC. Third, *Acquirer size*, measured by the natural logarithm of the total assets of the focal acquirer (in million USD), is included to capture the size of the acquiring firm.

## Methodology

We estimate a logistic regression model to examine the effects of the variables of interest on the likelihood of completing an announced M&A deal. As the sample consists of 2164 deals originating from 1077 firms, the assumption of lack of independence among the observations may be violated. To control for this within-firm correlation, we follow Pollock et al. (2008), whose data is similar to ours, and apply clustered standard errors. We also include year dummies and an industry dummy, where the printing industry and the year 2010 are taken as the reference category (with a dummy for the computer industry and dummies for all other years).

## Results

Table 1 presents descriptive statistics and the correlation matrix of key variables. Approximately 85.26 percent of attempted acquisitions were completed (similar to previous studies such as Chakrabarti and Mitchell, 2015; Dikova et al., 2010). The acquirers in our sample have relatively more experience with past acquisitions than with past divestitures. Each firm, on average, conducted 7.81 acquisitions during the five years prior to the focal transaction, but only 1.18 divestitures within the same period.

Table 1 reveals that all of the correlation coefficients are well below the normal cut-off of |0.7|. The variance inflation factors all have values ranging between 1.04 and 2.82, which are far below the standard cut-off level of 10 (Kennedy, 2000). So, multicollinearity is not a concern. Table 2 reports the results of our analysis. Model 1 includes only control variables, while *Divestiture experience* is added in Model 2. Models 3 and 4 present findings with the interaction terms between *Divestiture experience* and *Acquisition Experience* (Model 3), and *Divestiture experience* and *Deal size* (Model 4). The values of the Wald Chi$^2$ test in all models show that the null hypotheses that all parameters associated with the explanatory variables are simultaneously equal to zero, are rejected at the one percent level of significance.

***Control variables***. First, regarding transaction-level control variables, as predicted, (i) domestic deals are more likely to be finalized than their cross-border counterparts, (ii) when there is more than one bidding firm involved, the deal is less likely to be consummated, and (iii) larger deals are more likely to be completed than smaller deals. Second, as far as firm-level control variables are concerned, (a) larger bidders (in terms of total assets) have a greater chance of finalizing a deal than smaller bidders, (b) if one partner is publicly owned, the likelihood is reduced that an announced M&A transaction is completed, and (c), consistent with previous research (e.g., Muehlfeld et al., 2012), more acquisition experience increases the likelihood that acquiring firms will complete an announced M&A transaction. Third, although we do not report the estimates regarding year dummy variables and the industry dummy variable (computer industry) in our tables (available upon request), for the sake of parsimony, we find significant and positive coefficients for the years 1996, 1997, and 1999 in all models.[6] The industry dummy variable, however, is insignificant.

***Independent variables***. Turning our focus to the relationship between prior divestiture experience and M&A completion likelihood, *Divestiture experience* has a statistically significant ($p < .05$) and positive coefficient. This result supports Hypothesis 1. To test Hypothesis 2, we calculate the average marginal effects of *Divestiture experience* and *Acquisition*

[6] In an attempt to find out if regulatory attitudes changed over time, we examined the year dummies further and found that they are statistically significant only for the years 1996, 1997 and 1999. Given that they are statistically significant only for this narrow window within our much wider sampling frame (1991–2010), we cannot attribute this to changing attitudes of regulators. Also, if we could attribute this to learning, one might imagine that year dummies in later years have a more positive and statistical significant effect vis-à-vis year dummies in earlier years. This is also not the case. As a rough test, we split our sample into two time periods, and then examined the effects of year dummies across the two time periods. We examined if the effects of the year dummies differed across the time periods. However, even in this split sample estimation, the year dummies remained largely statistically insignificant. With this exploration, we conclude that there is insufficient evidence for the claim that regulatory influence has changed over time.

*experience*. Average marginal effects provide an approximation of the size of the change in *Acquisition completion likelihood* as a result of a one-unit change in *Divestiture experience* and/or *Acquisition experience* (Cameron and Trivedi, 2009). Based on this calculation, we can conclude that, *ceteris paribus,* the average probability of completing an M&A deal will increase by approximately 0.91 percent with an additional divestiture, but by only 0.24 percent with an additional acquisition experience. The Wald test of inequality of *Divestiture experience* and *Acquisition experience* rejects the null hypothesis that *Acquisition experience* is larger than *Divestiture experience* at the 10% level of significance ($p = .0875$). Hence, we have moderate support for Hypothesis 2 in which we conjecture that the effect of prior divestiture experience on M&A completion likelihood is greater than that of prior acquisition experience.

***Interaction effects***. Model 3 reveals that the coefficient of the interaction term between *Divestiture experience* and *Acquisition experience* is insignificant, but Model 4 indicates a significant interaction effect between *Divestiture experience* and *Deal size*. In a non-linear model, the effect of the interaction not only depends on the coefficients of the interaction and on the coefficients of the two variables in the interaction, as they are entered in levels, but also on the values of other covariates. Hence, we cannot interpret the magnitude and direction of interaction effects solely from the coefficients of the interaction terms. Moreover, the significance of the interaction term varies among observations in a non-linear model: Even when the coefficient of the interaction term is statistically insignificant, there can still be significant interaction effects for a specific range of observations (Hoetker, 2007). Therefore, Fig. 1a and b exhibit the plots of the calculated average marginal effects (Hoetker, 2007) of *Divestiture experience* when interacted with *Acquisition experience* and *Deal size*, respectively.

Fig. 1a reveals that the average marginal effect of *Divestiture experience* changes across the range of *Acquisition experience*, indicating that, in general, experience from prior acquisitions enhances learning through divestitures to improve future acquisition performance. To ensure that highly acquisitive firms do not skew the results, our results are based on an upper 5% trimmed sample in terms of acquisition experience. The average marginal effect of *Deal size* on *Acquisition completion likelihood* is positive in all cases of *Acquisition experience*, albeit exhibiting diminishing returns: The magnitude of the positive effect of divestiture experience decreases after a certain level of acquisition experience. We find that the average marginal effects between *Acquisition experience* = 5 and *Acquisition experience* = 20 are moderately significant ($p < .1$) and are in fact statistically significant at the $p < .05$ level in an intermediate range (between *Acquisition experience* = 9 and *Acquisition experience* = 14), which implies moderate support for Hypothesis 3.

Fig. 1b illustrates the average marginal effects of *Divestiture experience* when moderated by the natural logarithm of *Deal size* based on an upper 5% trimmed sample in terms of deal size. We note that average marginal effects of *Divestiture experience* are negative for lower values of deal size, but then become positive for larger values of deal size with eventually diminishing returns. Interpreting our findings in terms of deal size in millions of US dollars (rather than the natural logarithm), the average marginal effect of divestiture is both positive and statistically significant ($p < .01$) for values greater than USD 22 million. Given the size of deals ranges from USD 1 million to very large deals of over a billion USD, the positive effects of divestiture experience are not an artifact of our statistical method. This finding indicates that learning from divestitures has a greater impact on acquisition deal-making outcomes in larger *vis-à-vis* smaller deals. Therefore, Hypothesis 4 is supported.

### *Robustness analyses*

We conducted additional analyses to assess the robustness of our results (all available upon request). First, we re-ran the analyses with three- and ten-year experience measures, respectively. The results are mostly robust, except for the impact of divestiture experience in the three-year window case, with *Divestiture experience* being positive but not significant. We conjecture that as firms do not divest very frequently, there might not be many divestitures for firms to learn from in such a short time window.

Second, given the low frequency of *Divestiture experience* to *Acquisition experience*, the learning impact of *Divestiture experience* might be influenced by its rarity. Therefore, we replicated our analyses in two subsamples: The first sub-sample, in which every firm has at least one divestiture experience, contains 840 observations; the second sub-sample, in which every firm has at least one experience on both divestitures and acquisitions, has 780 observations. Results from both subsamples are similar to our findings from the full sample. All variables that are statistically significant in the full sample are also statistically significant in the subsamples. The only difference is that the magnitude of some of the coefficients of the control variables are larger in the subsamples. For instance, the cross-border dummy coefficient is larger (and still negative) in the case of the subsample of firms that conduct both divestitures and acquisitions, suggesting that these firms face more difficulties in completing M&A deals than firms that conduct only acquisitions. We do not do this here, but a more in-depth exploration of assessing the acquisition program of a firm as whole, rather than examining the success of individual deal, is explored in work initiated in Laamanen and Keil (2008).

Third, one could conjecture that firms also learn from failed acquisitions and failed divestitures. We have chosen not to theorize about failed divestitures, as we do not have data to explore this conjecture. We experimented with the inclusion of failed acquisition experience, but found this variable to be statistically insignificant, without changing other estimated coefficients in terms of sign and significance.

Fourth, the cash freed up by divesting assets may help firms to complete M&A transactions more easily. Hence, we add two types of cash variables: *Total Cash*, which is the amount of cash and temporary investment vehicles for cash as of the date of the most current financial information prior to the announced date of the focal acquisition, and *Divestment Cash*, which is the amount of cash that proceeds from asset sales after deducting the original purchase prices, measured for the latest 12 months ending on the date of the most current financial information prior to the announced date of the focal acquisition. As SDC does not provide data for all observations in the main sample, the two sub-samples with *Total Cash* and *Divestment Cash* consist of 2064 and 1905 observations, respectively. Analyses indicate no significant relationship between the cash variables and M&A completion likelihood.

Fifth, and finally, we also explore whether deal size of past deals affects completion likelihood in addition to deal size of the current deal. To do so, we included the average size of the past three deals (prior to the focal one) as an additional control variable. We found the coefficient of this past average deal size variable to be statistically insignificant (both in the presence and absence of the current deal size variable). While it is true that there could be learning from past deals, the empirics suggest that there is not very strong support for the conjecture that there is more learning from larger past deals than there is from smaller ones. Given that the coefficient of current deal size remains unchanged in sign and significance in the presence or absence of past deal size, we take this as support for its importance in learning.

## Discussion and conclusion

"One of the most important parts of making a deal successful after you complete it is what you do ***before*** you complete it" (Galpin and Herndon, 2014: 57). This statement refers to an important connection between the pre-integration process and M&A performance after the integration, which has largely been ignored in academic work. The completion of an M&A transaction in the pre-integration process does not guarantee a successful integration in the long run. A few of the important keys to successful acquisition deal-making, such as finding a suitable partner, efficiently performing due diligence, and effectively handling human resources issues (Galpin and Herndon, 2014), are also key for a higher completion likelihood of an M&A transaction. Hence, learning to successfully manage the pre-merger process can be considered as a crucial stepping-stone on the way to achieve good performance after the integration.

In this study, we find evidence that firms can learn to complete M&A transactions from both prior acquisitions and divestitures. Even though there are fewer divestitures than acquisitions, based on a comparison of the size effects, we find that the effect of an additional divestiture on completion likelihood is greater than the effect of an additional acquisition on completion likelihood. This key result confirms that variation in experience on related activities helps rather than harms the development of organizational knowledge (Graydon and Griffin, 1996; Paas and van Merrenboer, 1994; Schilling et al., 2003). From the other side of the table, targets can both gain insights into the entire pre-integration procedure, and evaluate tasks from a distance. This evaluation is based not only on observation of the acquirer's actions, but also on the evaluation of the consequences of these actions from the perspective of the selling firm. Therefore, they can extract the most appropriate knowledge, which helps to develop a deeper understanding of how to handle the pre-integration process (Schilling et al., 2003).

Regarding the relationship between divestiture experience and M&A completion likelihood, a question is whether this is really driven by learning effects or by regulatory conditions, cash freed up from divestitures, or corporate restructuring momentum. First, regulatory authorities may request firms to divest before acquiring new assets to avoid market monopoly. Second, with cash gained from selling assets, firms may be able to complete an acquisition more easily. Third, active buyers may also be active sellers as part of a general strategy of portfolio restructuring. Hence, growth desperation or momentum might lead to the interplay between these two activities. However, momentum effects can only explain the likelihood that a firm is involved in an acquisition or a divestiture, not the likelihood that the transaction is completed. Moreover, we consider the impact of accumulated divestiture experience on M&A completion likelihood, and not the effect of just a single divestiture on the completion of a subsequent acquisition. Hence, a regulatory requirement cannot offer an alternative explanation. Similarly, the effect of cash cannot adequately explain our finding: Given that divestitures occur much less frequently than acquisitions, cash from one divestiture cannot have long-term influences on several subsequent acquisitions. Indeed, our robustness analyses reveal no significant relationship between cash held by the focal acquirer and M&A completion likelihood.

In addition to the above, our empirical results indicate that firms learn better from prior divestitures when they have already conducted acquisitions. Moreover, learning from divestiture experience is particularly effective in larger *versus* smaller deals, although with diminishing effects. We suggest that very large transactions may be rare and complex, and applying knowledge from such unique events is difficult. Moreover, very large transactions require significant managerial attention (Ellis et al., 2011). These circumstances may limit the time required to recall knowledge related to past experiences and the application of this knowledge to the current context.

### *Theoretical contributions*

Our study contributes to the literature on organizational learning in several ways. First, we introduce a novel type of learning, which we refer to as "learning from the flipside". We feel that this type of "flipside learning" can be positioned between the two frequently studied types of organizational learning: Experiential learning and vicarious learning. On the one hand, since firms learn as they perform the task, learning from the flipside is similar to experiential learning. However, flipside learning is not experiential in the pure sense because the knowledge that learners obtain is to be applied in another context. Hence, this does not really involve "learning by doing something", but rather "learning by doing *something else*" (Schilling et al., 2003). On the other hand, learning from the flipside is similar to but different from vicarious learning to the extent that the target can learn through observing the acquiring firm's behaviors and their consequences. However, flipside learning is much more active than vicarious learning as widely studied in prior literature (e.g., Baum et al., 2000; Haunschild and Miner, 1997; Kim and Miner, 2007) because flipside learners actively *participate* in the experience of the other party.

Vicarious learners in prior studies mostly learn through observing and mimicking the strategic decisions of others without deep understanding of the reasons or contexts; flipside learning involves not only observing behaviors of the other firm, but also evaluating their consequences. Hence, the lessons learnt are associated with lower ambiguity, implying that the likelihood is higher to extract appropriate knowledge.

Second, our study responds to the call for additional research on learning across different restructuring activities (Zollo and Reuer, 2010). Earlier studies have investigated acquisitions, divestitures and alliances as isolated means of acquiring, recombining and utilizing resources of organizations (e.g., Barkema and Schijven, 2008b; Capron et al., 2001), but only minimal attention has been paid to the cross-learning aspect of these corporate restructuring activities. Our research not only suggests that firms could obtain knowledge from divestitures to handle acquisition deal-making adequately, but also provides a direct comparison between learning from divestiture and acquisition experience, the former being more powerful than the latter. With this evidence, our study supports literature on the role of variation from different but related tasks in learning (e.g., Schilling et al., 2003; Wiersema, 2007). Acquisition experience is helpful in codifying and refining acquisition deal-making routines, but knowledge from divestiture experience can add richness and diversity to the knowledge stock. As this knowledge is obtained from a different perspective, firm employees are motivated to learn and adjust their existing acquisition deal-making routines. These arguments are in line with literature on learning from rare events (e.g., Lampel et al., 2009; Madsen and Desai, 2010).

Related to the above, we believe that our research also contributes to the debate regarding the roles of homogeneity and similarities *versus* heterogeneity and dissimilarities in the organizational learning literature (e.g., Beckman and Haunschild, 2002; Ellis et al., 2011; Reuer et al., 2002; Winter and Szulanski, 2001). On the one hand, prior research agrees that homogeneity in experience facilitates learning (e.g., Beckman and Haunschild, 2002; Ellis et al., 2011). It is more likely for learning to be positive when experience shares more commonalities or similarities with the current task. However, on the other hand, many recent studies claim that heterogeneity accelerates learning as variance of within-activity experience helps to deepen the understanding of a specific task (Reuer et al., 2002; Winter and Szulanski, 2001). Although our study focuses on examining the role of heterogeneity in learning through the relationship between divestiture experience and acquisition completion, we do not ignore the role of homogeneity; rather, we consider both of them as complementary learning vehicles. We suggest that homogeneity is crucial for firms to refine their existing routines with regard to acquisition deal-making (in our case), and provide a background for firms to learn efficiently from related experience. Additionally, heterogeneity or variance from related experience offers more insights to enrich current understanding of the (M&A) activity. Thus, it is not one or the other that determines learning, but for learning to be most beneficial both of these routes should be taken into account as complementary factors.

Fourth, we explore how flipside learning from prior divestitures and experiential learning from prior acquisitions interact. Prior research focused on examining how different types of experience can interactively influence organizational learning processes (e.g., Baum and Dahlin, 2007; Madsen and Desai, 2010). Our findings advance this literature by confirming that experiential learning provides a knowledge base that enhances the efficiency of the vicarious learning process. We also consider an additional moderating factor by investigating the effect of deal value on the impact of divestiture experience on acquisition completion likelihood. Our finding that the effect of learning from divestitures is greater in larger rather than in smaller deals not only provides insights into the specifics of flipside learning theory, but also answers questions concerning the boundary conditions of this type of learning.

From the perspective of the M&A literature, our study raises further issues regarding learning in the context of acquisitions. To the best of our knowledge, the M&A literature thus far chiefly focused on exploring how learning from prior acquisitions (experientially or vicariously) can affect subsequent acquisition outcomes (Barkema and Schijven, 2008a). Our study provides a first attempt to explain the role of learning from prior divestitures – that is, from the flipside of an acquisition. Seen this way, our work not only contributes to the literature on learning in acquisitions, but can also serve as a call for a more holistic view on learning from other types of corporate restructuring, particularly divestitures. In addition, the current study extends the growing literature on the pre-integration M&A deal-making process (e.g., Angwin et al., 2015; Chakrabarti and Mitchell, 2015; Dikova et al., 2010; Muehlfeld et al., 2011, 2012), particularly related to the determinants of M&A deal completion (Wong and O'Sullivan, 2001).

*Practical implications*

The most important practical implication of our research is that a different and more optimistic view of divestitures is warranted. Divestitures used to be perceived negatively, as downsizing or down-scoping activities (Decker and Mellewigt, 2007). They can also be considered as a tool for firms to dispose of redundant assets or inefficient business units or "a way for corporations to 'take out the trash'" (Moschieri and Mair, 2011: 51). In the last decade or so, more attention has been paid to the role of divestitures in the general growth strategy of organizations, both in academic and non-academic work (e.g., Brauer, 2006; Mankins et al., 2008; Lee and Madhavan, 2010; Vidal and Mitchell, 2017). However, most of these contributions focus on the preparation before divesting assets and the work to be done after the divestment. Our study, in contrast, investigates the process in between, particularly the valuable takeaways for managers from this process. A key practical implication for managers is that they should perceive divestitures as learning opportunities, offering key sources of knowledge that can enhance the success of future acquisitions.

Learning from divestitures might be challenging. Ascertaining appropriate knowledge related to future acquisitions is not an easy endeavor. One manner to enhance the efficiency and effectiveness of this observational learning process is for firms to exploit the knowledge retrieved from their own acquisitions as a platform to assess which knowledge from divestitures is most appropriate for future M&As. Organizations can then incorporate this new knowledge into their existing M&A routines and procedures. This is the key opportunity offered by vicarious observational learning: By observing from the flipside of an acquisition, the target organization can gain knowledge that can be applied to improve current procedures and routines. Being aware of this and putting learning-enhancing tools in place can substantially boost the organization's learning capabilities.

### *Limitations and suggestions for future research*

A number of limitations in this study can be taken as opportunities for further research. We suggest three future research avenues. First, acquisitions and divestitures usually occur in sequence. Acquisitions and asset divestitures can be elements of a dynamic process in which firms reorganize their businesses through recombining internal and external resources (Capron et al., 2001). In addition, firms may divest via either sell-offs or spin-offs in order to achieve better synergies or acquire in a strategic attempt to arrive at an optimal firm portfolio (Bennett and Feldman, 2017; Vidal and Mitchell, 2017). Therefore, the sequence of acquisitions and divestitures may play a role in the effectiveness of learning processes (Bingham and Davis, 2012). Future work might explore these sequential contingencies and their influence on learning during acquisitions. In so doing, researchers may also include the moderation of different contexts of restructuring activities (Muehlfeld et al., 2012). For example, whether firms can learn from a hostile divestiture in the past to complete a subsequent friendly acquisition and vice versa. Additionally, Laamanen and Keil (2008) demonstrate that firms develop acquisition programs that improve their acquisition capabilities, which consequently enhance their acquisition performances. Therefore, an interesting research question might be whether divestitures could be considered as complementary to such acquisition programs, which together build up firms' capabilities in handling corporate restructuring activities.

Second, as our data were collected from Thomson SDC, we could only observe announced acquisition deals. The downside of such secondary data is that they cannot reveal what is really occurring during the pre-integration process behind closed doors. This implies that many questions regarding the underlying processes remain unanswered. Recently, Angwin et al. (2015) has made a considerable contribution to the field by providing a qualitative study focusing on the first stage of this pre-integration process. Yet, more rich qualitative research on how firms actually learn from the negotiation and other due diligence tasks is still in need as it will enhance our understanding of, for example, how the process of creating and transferring knowledge evolves during this period of the M&A process.

Third, the scope of our research is restricted to the pre-integration process of announced M&A deal-making. Furthermore, as this is the first attempt to investigate learning in the special context of the “flipside” of an M&A, we only focus on the effect of divestiture experience on acquisition completion likelihood. Therefore, a promising potential for research in the future is to investigate whether the effect of learning from the flipside can be translated into superior post-integration performance. In addition, the role of learning from prior restructuring activities, including acquisitions, alliances, and divestitures in determining the performance of future restructuring activities might also be another interesting topic for further exploration.

Fourth, and finally, regarding vicarious learning to make acquisitions, prior research addresses that experience on working with intermediaries such as investment banks facilitates firms' access to acquisition-related information, hence enhancing post-integration performance (Chang et al., 2016; Sleptsov et al., 2013). These findings, together with our findings in this paper, suggest an interesting direction for future research on knowledge spillovers among restructuring activities and their learning impact on firm performance. That is, in addition to learning from their direct partners, firms may also learn from third parties in their restructuring transactions, such as investment banks, consultants and lawyers, and apply these insights to enhance performance in future diversification activities.

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## Appendix

Fig. 1. a&b. Average marginal effects of *Divestiture experience* when interacted with (a) *Acquisition experience* (Model 3)[7] and (b) the natural log of *Deal size* (Model 4).[8]

[7] We calculated the average marginal effects of *Divestiture experience* when *Acquisition experience* was fixed at values ranging from 0 (minimum value) to 89 (maximum value).

[8] As *Deal size* is a continuous variable, we calculated the average marginal effects of *Divestiture experience* when *Deal size* was fixed at a specific value, such as $1 million, $10 million, and so on.

a. b.

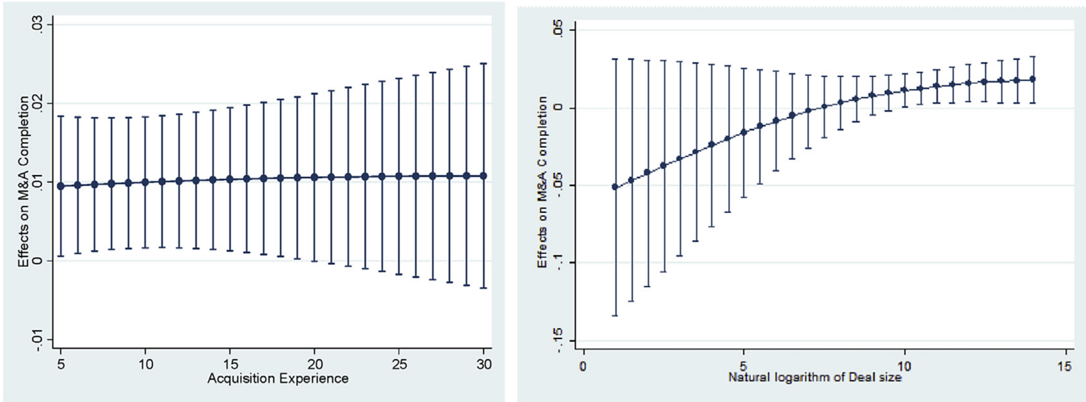


Table 1: Descriptive statistics and correlations.

| Variable | Mean | S.d. | Min | Max | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. M&A completion likelihood | 0.85 | 0.35 | 0 | 1 | | | | | | | | | | | | |
| 2. Cash payment | 0.56 | 0.50 | 0 | 1 | 0.01 | | | | | | | | | | | |
| 3. Deal attitude | 0.94 | 0.24 | 0 | 1 | 0.06* | −0.13* | | | | | | | | | | |
| 4. Industry relatedness | 0.12 | 0.33 | 0 | 1 | −0.01 | 0.01 | −0.02 | | | | | | | | | |
| 5. Cross-border | 0.26 | 0.44 | 0 | 1 | −0.04 | 0.10* | −0.06* | −0.02 | | | | | | | | |
| 6. Competing bid | 0.01 | 0.10 | 0 | 1 | −0.08* | 0.01 | −0.07* | 0.00 | 0.01 | | | | | | | |
| 7. (ln) Deal size | 10.06 | 2.33 | 0.69 | 17.04 | 0.17* | −0.08* | 0.03 | 0.06* | 0.06* | 0.12* | | | | | | |
| 8. (ln) Acquirer size | 12.90 | 2.78 | 0 | 21.68 | 0.17* | 0.27* | −0.07* | −0.01 | 0.07 | 0.07* | 0.59* | | | | | |
| 9. Diversification index | 4.57 | 2.81 | 1 | 21 | 0.07* | 0.14* | −0.05* | −0.05* | 0.05* | 0.03 | 0.22* | 0.45* | | | | |
| 10. Acquirer public status | 0.98 | 0.14 | 0 | 1 | −0.03 | −0.09* | 0.05* | 0.02 | −0.05* | −0.02 | 0.03 | 0.00 | 0.02 | | | |
| 11. Target public status | 0.26 | 0.44 | 0 | 1 | −0.01 | 0.01 | −0.19* | 0.01 | 0.01 | 0.12* | 0.33* | 0.29* | 0.17* | −0.07* | | |
| 12. Acquisition experience | 7.81 | 15.33 | 0 | 89 | 0.13* | 0.01 | 0.05* | −0.01 | 0.01 | 0.00 | 0.34* | 0.54* | 0.24* | 0.05* | 0.06* | |
| 13. Divestiture experience | 1.18 | 2.16 | 0 | 20 | 0.11* | −0.03 | 0.03 | 0.03 | −0.02 | 0.02 | 0.24* | 0.41* | 0.28* | 0.04* | 0.10* | 0.45* |

*Correlation is significant at the 0.05 level (two-tailed).

Table 2: Results of logistic regression model of acquisition completion likelihood.[9]

| Variables | Acquisition completion likelihood | | | |
|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 |
| | Controls only | Divestiture experience | Interaction with Acquisition experience | Interaction with Deal size |
| Cash payment | 0.084 (0.155) | 0.106 (0.157) | 0.110 (0.157) | 0.108 (0.157) |
| Deal attitude | 0.429 (0.277) | 0.445 (0.277) | 0.446 (0.276) | 0.402 (0.278) |
| Industry relatedness | −0.191 (0.200) | −0.211 (0.201) | −0.204 (0.201) | −0.212 (0.201) |
| Cross-border | −0.317** (0.146) | −0.316** (0.147) | −0.313** (0.146) | −0.311** (0.146) |
| Competing bid | −2.073*** (0.460) | −2.075*** (0.466) | −2.077*** (0.468) | −2.129*** (0.484) |
| Deal size (log value) | 0.157*** (0.039) | 0.159*** (0.039) | 0.159*** (0.039) | 0.134*** (0.040) |
| Acquirer size (log value) | 0.080** (0.036) | 0.072** (0.036) | 0.072** (0.036) | 0.076** (0.036) |
| Diversification index | 0.024 (0.026) | 0.018 (0.026) | 0.019 (0.026) | 0.018 (0.026) |
| Acquirer public status | −1.159* (0.669) | −1.153* (0.648) | −1.149* (0.649) | −1.120* (0.650) |
| Target public status | −0.468*** (0.162) | −0.465*** (0.163) | −0.462*** (0.162) | −0.476*** (0.163) |
| Acquisition experience (5 years) | 0.032*** (0.009) | 0.024*** (0.009) | 0.020 (0.013) | 0.021** (0.008) |
| Divestiture experience (5 years) | | 0.090** (0.045) | 0.072 (0.054) | −0.276 (0.221) |
| Divestiture experience * Acquisition experience | | | 0.002 (0.003) | |
| Divestiture experience * (ln) Deal size | | | | 0.037* (0.022) |
| Intercept | −0.260 (0.831) | −0.213 (0.812) | −0.218 (0.813) | −0.017 (0.830) |
| Cases in analysis | 2164 | 2164 | 2164 | 2164 |
| Log pseudo-likelihood | −813.189 | −811.497 | −811.365 | −809.868 |
| Wald chi-square | 153.74 | 158.35 | 157.40 | 150.69 |
| Probability | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Robust standard errors in parentheses; ***$p < .01$, **$p < .05$, and * $p < .1$.

[9] Year dummy variables and the industry dummy variable (Computer industry) are not reported in the table. The year 2010 and the printing industry were taken as reference categories.

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